

ADVISORY COMMITTEE ON IMMUNIZATION PRACTICES

VACCINES FOR CHILDREN PROGRAM

MEASLES, MUMPS AND RUBELLA

VACCINES TO PREVENT MEASLES, MUMPS AND RUBELLA

The purpose of this resolution is to consolidate all previous resolutions pertaining to measles, mumps and rubella vaccines into a single resolution. This resolution does not make substantive changes to any previous resolution, except the following:

- 1. Clarifies contraindications and precautions to the administration of MMR (or component) vaccines.*
- 2. Clarifies MMR vaccine use in infants during outbreaks.*

VFC resolutions 2/94-12, 2/94-13, 6/94-7 and 6/97-3 are repealed and replaced by the following:

Eligible Groups

Children at least 12 months of age through 18 years except may be as young as 6 months of age in an outbreak.
(See "Recommended Dosage Intervals" regarding revaccination of infants < 12 months of age).

Recommended Measles, Mumps and Rubella Vaccine Schedule

The recommended schedule for measles, mumps and rubella vaccination for children includes two doses of MMR vaccine given at the following ages:

<u>Age</u>	<u>Dose</u>
12 -15 months	Primary
4 - 6 years	Second

Catch-Up Vaccination

Previously unvaccinated children older than 15 months should receive the first dose of MMR as soon as possible. The ACIP recommends that the VFC program should provide the second dose of MMR vaccine to eligible children at any age from 13 months through 18 years, provided at least 28 days has elapsed following receipt of the first dose of MMR vaccine.

The recommended immunization schedule may vary for infants and children up to their seventh birthday who do not begin the vaccination series at the recommended times or who are more than 1 month behind in the immunization schedule.

Single antigen measles, mumps or rubella vaccines should be used only if there is a specific contraindication to one component of MMR vaccine, or the child is known to be immune or adequately vaccinated for one or more of these diseases, or measles vaccine is indicated for a child prior to one year of age (e.g., during outbreaks among preschool-aged children). Routine vaccination should only be completed with MMR.

Recommended Dosage Intervals

Vaccine	Minimum age for first dose	Minimum interval from dose 1 to 2
MMR	12 months*	28 days

*Although the age for measles vaccinations may be as young as 6 months in outbreak areas where cases are occurring in children <1 year of age, children initially vaccinated before the first birthday should be revaccinated at 12-15 months of age and an additional dose of vaccine should be administered at the time of school entry or according to local policy. Doses of MMR or other measles-containing vaccines should be separated by at least 28 days.

Recommended Dosages

Refer to product package inserts.

Contraindications and Precautions

The following conditions are contraindications to administration of MMR vaccine, or vaccines which contain one or more MMR component:

- Allergy to Vaccine Components**
MMR and its component vaccines contain hydrolyzed gelatin as a stabilizer. Therefore, caution should be exercised when administering MMR or its component vaccines to persons who have a history of an anaphylactic reaction to gelatin or gelatin-containing products. Persons who have experienced anaphylactic reactions to topically or systemically administered neomycin should not receive MMR or any of its component vaccines.

2. **Moderate or severe illness with or without fever**

3. **Pregnancy**

Because of theoretical risk to the fetus, women of childbearing age should receive MMR or its component vaccines only if they state they are not pregnant and are counseled not to become pregnant for 3 months after vaccination (or at least 30 days after non-rubella-containing measles and mumps vaccines).

MMR or measles, mumps, or rubella vaccination during pregnancy should not ordinarily be a reason to consider interruption of pregnancy.

4. **Known altered immunocompetence**

Replication of vaccine viruses can be enhanced in persons with immune deficiency diseases and in persons with immunosuppression. Severe immunosuppression may be caused by many disease conditions (e.g., congenital immunodeficiency, HIV infection, hematologic or generalized malignancy) and by therapy with immunosuppressive agents, including large doses of corticosteroids. For some of these conditions, all affected persons are severely immunocompromised. For other conditions, (e.g., HIV infection), the degree to which the immune system is compromised depends on the severity of the condition, which in turn depends on the disease or treatment stage. Ultimately, the patient's physician must assume responsibility for determining whether the patient is severely immunocompromised based on clinical and laboratory assessment.

The following are considered precautions to administration of MMR (or component) vaccines:

1. **Thrombocytopenia**

Children with a history of thrombocytopenia purpura or low platelet counts at the time of vaccination may be at increased risk for clinically significant thrombocytopenia following MMR vaccine.

2. **Recent receipt of immune globulin (within 3 months or longer; see table 1)**

Blood and other antibody containing blood products, including immune globulin (IG) preparations, can diminish the immune response to MMR or its individual component vaccines. MMR or its component vaccines should be given at least 2 weeks before administration of an immune globulin (IG) containing product or deferred until 3 or more months after administration of such preparations.

Table 1. Time Interval Since Receipt of Immune Globulin

Indications	Dose (mg IgG/kg)	Time interval (mos) before measles vaccination
Tetanus prophylaxis (TIG)	250 units (10 mg IgG/kg) IM	3
Hepatitis A prophylaxis (IG)	0.02 mL/kg (3.3 mg IgG/kg) IM	3
Contact prophylaxis	0.06 mL/kg (10 mg IgG/kg) IM	3
International travel		
Hepatitis B prophylaxis (HBIG)	0.06 mL/kg (10 mg IgG/kg) IM	3
Rabies prophylaxis (HRIG)	20 IU/kg (22 mg IgG/kg) IM	4
Varicella prophylaxis (VZIG)	125 units/10 kg (20–40 mg IgG/kg) IM (maximum 625 units)	5
Measles prophylaxis (IG)		
- Standard (i.e., nonimmuno-compromised contact)	0.25 mL/kg (40 mg IgG/kg) IM	5
- Immunocompromised contact	0.50 mL/kg (80 mg IgG/kg) IM	6
Blood transfusion:		
- Red blood cells (RBCs), washed	10 mL/kg (negligible IgG/kg) IV	0
- RBCs, adenine-saline added	10 mL/kg (10 mg IgG/kg) IV	3
- Packed RBCs (Hct 65%) [†]	10 mL/kg (60 mg IgG/kg) IV	6
- Whole blood (Hct 35%–50%) [†]	10 mL/kg (80–100 mg IgG/kg) IV	6
- Plasma/platelet products	10 mL/kg (160 mg IgG/kg) IV	7
Replacement therapy for immune deficiencies [§]	300–400 mg/kg IV (as IVIG)	8
Respiratory syncytial virus prophylaxis	750 mg/kg IV (as RSV-IGIV)	9
Treatment of:		
-Immune thrombocytopenic purpura (ITP)	400 mg/kg IV (as IGIV)	8
	1000 mg/kg IV (as IGIV)	10
-Kawasaki disease	2 g/kg IV (as IGIV)	11

*This table is not intended for determining the correct indications and dosage for the use of immune globulin preparations. Unvaccinated persons may not be fully protected against measles during the entire suggested time interval, and additional doses of immune globulin and/or measles vaccine may be indicated after measles exposure. The concentration of measles antibody in a particular immune globulin preparation can vary by lot. The rate of antibody clearance after receipt of an immune globulin preparation can vary. The recommended intervals are extrapolated from an estimated half-life of 30 days for passively acquired antibody and an observed interference with the immune response to measles vaccine for 5 months after a dose of 80 mg IgG/kg.

†Assumes a serum IgG concentration of 16 mg/mL.

§Measles vaccination is recommended for HIV-infected children who do not have evidence of severe immunosuppression, but it is contraindicated for patients who have congenital disorders of the immune system.

Abbreviations: HBIG=hepatitis B immune globulin; Hct=hematocrit; HRIG=human rabies immune globulin; IG=serum immune globulin; IGIV=immune globulin, intravenous; IM=intramuscularly; IV=intravenously, RBCs=red blood cells; RSV-IGIV=respiratory syncytial virus immune globulin, intravenous; TIG=tetanus immune globulin; VZIG=varicella zoster immune globulin.

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